CENTER ROUTING SLIP

FROM	DATE
Chief, PPBS	30 ~~24~~ July 1969

TO	INITIALS	DATE
DIRECTOR		
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EXEC/DIRECTOR		
SPECIAL ASST		
ASST TO DIR		
ASST TO DEP/DIR		
CH/PPBS		
DEP CH/PPBS		
EO/PPBS		
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DEP CH/TSSG		
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CH/SSD/TSSG		
PERSONNEL		
LOGISTICS		
TRAINING		
RECORDS MGT		
SECURITY		
FINANCE		
DIR/IAS/DDI		
CH/DIAXX-4		
CH/DIAAP-9		
CH/SPAD		

REMARKS

John:

The attached represents the initial cut at the MIS problem. Before proceeding further, I would like to have the benefit of your informal comments on the approach suggested. After you have had a chance to look at the report, [redacted] will be available to discuss it with you and get your reactions. I feel this is a relatively important matter for all of us; I would prefer to move forward on it as rapidly as possible and hopefully wind up the discussions within the next two weeks. Therefore, would you please call Lee [redacted] and let him know when it would be convenient for you to discuss the report with him.

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IP FM 30 (11-68) - OBSOLETE PREVIOUS EDITIONS

NPIC/TSSG/PPS-145-69
8 August 1969

MEMORANDUM FOR THE RECORD

SUBJECT: Working Paper--"Definition of Management Information Needs" by [redacted] 25X1

1. [redacted] has asked me to inquire within the Group about the current and future uses of the M.I.S. He would like to have a better understanding. Specifically: "How can APSD utilize the system? Is it possible to get R&D Project Status? Do we feel the need for such a system within TSSG? Can SSD utilize such a system?" 25X1

2. [redacted] could find no problem with [redacted] paper and has asked me to prepare a memorandum to [redacted] signature to the effect that he would support the recommendation as listed in the Working Paper Report. He would like, however, to have this recommendation considered by the Staff and Division Chiefs prior to replying to [redacted] Alternatives and recommendations are attached to this note as well as the TSSG comments of April 1969. 25X1 25X1 25X1

[redacted] 25X1
Deputy Chief, Projects & Programs Staff, TSSG, NPIC

Attachment:
As stated

Distribution:
Original & 1 - NPIC/TSSG/PPS
1 - NPIC/TSSG/APSD
1 - NPIC/TSSG/ARTS
1 - NPIC/TSSG/ESD
1 - NPIC/TSSG/DED
1 - NPIC/TSSG/SSD

SECRET

Appendix E: Responses to Questions on Definition of Management Information Needs and Reassessment of the MIS

and certain statistical information is maintained manually for compilation of monthly reports. In view of the above and the MIS output utilized, as mentioned previously, R&RD comments, "Because of the basic structure of the MIS and the difficulty the Division has in participating in it, most of the information derived from the system is of little value. For our purposes, it is an inaccurate and inadequate picture of our activities because the basic data put into it is distorted in order to conform to the pattern set. We use time sheet data to match with statistical information kept manually in order to arrive at an average figure for processing materials or answering research and reference questions. But with the known inaccuracies of input, the resulting inaccuracies cannot be considered as anything more than an estimate. Much of the information contained in the various option runs reveals only that an individual is performing the duties for which he was hired." The Division stated that it needs basically the kind of data it now compiles manually, and often on an immediate basis, specifically, numbers and originators of requests for services; types and numbers of materials processed, on hand, and disseminated; regular and overtime allocations to these activities; a print format to relate time, product, activity, and requester, and information on the inter-relationships of projects among various responsible components. It would like to have the capability for on-line display or printed graphical forms of this information. R&RD summarized by saying that management information is needed by the Division to give an accurate picture of its overall services to the Center; to identify the chief users of Division facilities; to develop service time statistics; to develop trend information so appropriate actions can be taken; to plan for the future; to provide standards for comparison with similar facilities in other organizations, and to provide higher management with the information it needs for planning.

TSSG

In responding to the questions on management information needs, TSSG noted that the Group, aside from SSD, has only a few formal systems for obtaining and maintaining information. This is a function perhaps of the facts that the Group is small in size, is charged with activities of a radically diverse nature, and has some strict compartmentalization because of security, all of which encourages many person-to-person information exchanges. Also, the Support Services is regulated by DDS procedures and has what is tantamount to a separate information system. Aside from records kept for DDS activities, the main TSSG information files concern personnel and project status. These files may be largely overlapping

Appendix E: Responses to Questions on Definition of Management Information Needs and Reassessment of the MIS

and redundant, but they are manual, rudimentary means of keeping managers aware of where their employees are and what they are doing, what tasks are pending, and whether deadlines and cost estimates are being met. TSSG commented that, for all intents and purposes, "...the people in this Group do not use the MIS. Furthermore, most managers have only vague notions about the System's capabilities." The Group suggested that a "NPIC Data Center," keeping both manual and machine records, might answer some Center problems and obviate duplicate files to a certain extent. The stated TSSG managerial information needs are:

1. New Collection System Data -- For Planning R&D Programs and Center operations.

2. Higher Management Policies and Objectives -- A self-evident need, but one which some managers feel is often overlooked.

3. Status of Projects -- In TSSG, emphasis is placed upon ascertaining and documenting the status of R&D projects. Each manager must have available certain project information; although some smaller components tend to rely on memory for the information, the most orderly and efficient keep some written records regardless of size.

4. Contractor Standards and Performance -- Currently, this need is met by information recorded mainly in individual project files; such a file should be part of the Agency-wide systems being developed by DD/S&T and O/L.

5. File of Technical Specifications -- A library of "boiler-plate" papers giving routine passages in development objectives and specifications.

6. NPIC Equipment Inventories -- An inventory with consistent terminology giving items on hand, age, condition, maintenance requirements, and technical specifications such as size, weight, and power needs.

7. Mission Schedules -- Size, type, and date of anticipated input.

Appendix E: Responses to Questions on Definition of Management Information Needs and Reassessment of the MIS

8. Personnel Locator and Attendance Records -- The need is well established, and being met, but not efficiently since many duplicative files exist.

The specific needs of the PMB were mentioned under the Output section; essentially, this comprises near real-time reporting of availability and utilization of resources versus on-hand and estimated requirements and other valid tasks. Obviously, this is both an accounting and forecasting function. PPB/RAD now accurately forecasts satellite mission processing man-hour requirements, based upon numbers of targets, for the PMB using MIS data. In addition, the PMB is moving toward better forecasting for the other NTP categories or whatever meaningful breakdown of Center activities is devised in the future. The PMB needs data in a timely fashion to greatly improve both the accounting and forecasting capabilities.

The needs of the PPB Staff can be divided into routine and special or non-routine. The routine needs are the data and properly formatted output relevant to the budgeting cycle and the five-year planning and programming effort and the data to keep the O/DIR and other legitimate authority adequately informed concerning operations, current and future. Although these may appear to be rather straightforward requirements, they are complex endeavors which require accurate measurement and reporting of resources and their uses, classified at least three ways (dollars, human resources, and materiel resources) with a crosswalk capability, meaningful assessments of the future environment and its demands upon and resource implications for the Center, and policy and plans to meet these future requirements, expressed in appropriate units of resources required. The non-routine or special needs are more difficult to assess, which implies a significant degree of flexibility in the data base and the system with respect to content and input and output. However, certain data needs can be foreseen and incorporated in the system with the assurance that the expense will be less than the benefits to be derived; other needs must be carefully weighed, cost versus benefit, before they are routinely incorporated. And one other capability, not now present in the MIS, is that the results of certain significant special studies, including the data generated, must be incorporated in the system.

It is also worth mention that, to a greater or lesser extent, within the Groups certain scheduling and production controlmechanisms exist.

A Preliminary Study of the NPIC Management Information System (MIS) and Management Information Needs

Table of Contents

Main Report

The tasks to which this study is addressed are the definition of management information needs, reassessment of the current Management Information System (MIS), and consideration of alternatives. The intent is to view the MIS and management information needs, and their relationships to Center activities, in general, in broad perspective so as not to obscure the issues with unnecessary detail. No attempt will be made to fully summarize the appendices, since that information speaks for itself. However, the appendices will be liberally referred to and significant points noted.

It is extremely difficult to place a specific value upon management information, particularly in a non-profit environment. About all that can be said is that Center management (and other appropriate authority) should have available, by one means or another, that information which it must have to accomplish its objectives and fulfill its missions and that the associated costs should not be excessive. Certainly this information requirement can be met at a cost commensurate with the importance of the NPIC product and with fulfillment of the national role in the intelligence community.

The problem then is briefly one of, firstly, defining the objectives and missions and, secondly, defining the information which is essential to accomplish these in order to assess the assets and liabilities of the MIS and consider alternatives. The importance of objectives, goals, etc., has been discussed elsewhere a number of times, so the focus of this study will be upon the second item. This deceptively complex subject, the information necessary to manage, nothing more and nothing less, is the legitimate concern; that is, a management information system, not a strategic planning tool, not an operations research technique, and definitely not just an operational control device for monitoring specific tasks, although this latter activity is certainly related to a management information system and may indeed be a subset of such a system.

There is much confusion about management information systems in general and the MIS in particular; this is the root cause of many of the problems besetting the current MIS. Questions such as "What do I want it to do and why?" "What should it do?" "What can it do?" "What can't it do?" need answers. Stated bluntly, it is quite clear that many persons do not either understand or agree, or perhaps both, upon the purposes and capabilities of the MIS, or any management information system for that matter. This is evident from the responses obtained from the Groups and Staff, and from discussions with IAS, to certain questions posed to them on the MIS and management information needs (see Appendices B, Questions on Definition of Management Information Needs and Reassessment of the MIS, and E, which summarizes responses to the questions). Perhaps, too, it is naive and unrealistic to expect full understanding and agreement, and it should not be inferred that any one answer to a question posed is necessarily correct. The answer to a question such as "What are your

Main Report

management information needs?" will depend upon, among other things, such variables as what the person is supposed to do, what he actually does, how he does it, the particular problems he has encountered in the past, the requests he has had and anticipates for information about his areas of responsibility, and even personal biases.

When trying to categorize and analyze the substance and validity of responses stating information needs, plus opinions as to what is wrong with or lacking in an ongoing system, which also reflect the variables mentioned above, it is next to impossible to classify, much less reach conclusions about, the responses unless some sort of framework is provided upon which to "hang" the information; that is, to relate its parts and make it a cohesive picture, so as to furnish a perspective which is valid and can be of some use in making the appropriate decisions.

Such a framework is provided in Appendix D, Management Information and Planning and Control. Although some might consider such an approach "too theoretical" and a "waste of time," it is hoped that the point has been made, and it will be reinforced below, that this is absolutely essential. All too often, there is a tendency to go charging off in all directions with solutions to the problems before the problems are really defined or understood. The intent herein is to derive the right solution for the real problem, not what someone thinks it is but what it actually is. (For example, would it not be rather foolish to make the MIS real time when there is almost unanimous agreement that the MIS information content is inadequate?) And it does not matter so much whether or not there is agreement upon the conceptual framework (there probably won't be since there are almost as many views of the management process as there are managers); what is important is that the classification scheme is understood so that there is communication using a language meaning the same things to all involved. For example, it is hoped that, when operational control decisions are referred to, all are thinking about roughly the same type of decisions with respect to time span, organizational level, importance, amount of judgment involved, and so forth, no matter what others might have preferred or even what might have been preferable to term that class of decisions. The main definitions derived in Appendix D are repeated here for convenience.

Strategic Planning: the process of deciding on objectives of the organization, on changes in the objectives, on the gross resources used to attain these objectives, and on policies that are to govern the acquisition and use of these resources.

Management Control: the process by which managers assure that resources are obtained and used effectively and

Main Report

efficiently in the accomplishment of the organization's objectives. It combines both planning and control within the context of objectives and policies determined in the strategic planning process; effectiveness and efficiency are the criteria relevant for judging actions.

Operational Control: the process of assuring that specific tasks are carried out efficiently and effectively; emphasis is upon execution of tasks.

It was not possible to obtain the first or original cost of the current MIS, but a very conservative estimate of current annual costs to NPIC, more or less directly attributable to MIS operations, is [redacted] or, looking at it another way, less hardware costs of about [redacted] yearly, this is the equivalent of about 12 [redacted] (NPIC average grade) man-years. It should be noted that hardware cost is essentially a sunk cost since NPIC owns its computers and contracts for regular maintenance, and those costs equivalent to the extent that MIS output obviates other systems probably should be subtracted from the annual cost figure if it is desired to arrive at an absolute cost figure. 25X1 25X1 25X1

Appendix C, Brief Description of the Current MIS, and Appendix F, Samples of MIS Standard Output, roughly sketch the operation of the System and indicate its capabilities. Briefly, the MIS can provide regular time hours, overtime hours, and dollar equivalents sorted in various ways according to organizational element (Group, Division, etc.), project block (major work effort, such as KH-4A processing, basic reporting, etc.), specific project number, and activity or skill code(s). It is capable of providing reports or listings showing active projects on record, active projects by responsible component, all projects on record, new projects established, projects completed during a period, projects cancelled, and products and time recorded against cancelled and completed projects. These reports generally include project number, project title, organizational element responsible for the project, category or specific type of project, country or area of interest, requesting organization, project priority/weight, begin, deadline, and completion/cancellation dates, and security classification code of the requirement form. Also available is a report, Component Time Allocation, giving weekly information on each employee by component; it shows name, badge number, grade, component, week ending date, projects worked on, activities against projects, and regular time, overtime, and dollar equivalents. In addition, there is a MIS capability for specially formatted reports; that is, presentation of data in other than standard formats in answer to ad hoc requests but not necessarily in any format desired--there are constraints as to how the data may be aggregated and presented.

Main Report

In short, this is the current MIS capability, which does not mean the System cannot be improved, if desirable, in a number of ways, including perhaps reprogramming. The most serious constraints by far on improvement of the MIS are dictated by its record structure, which simply means that it is possible to input and store data only in certain rigid formats and amounts and to associate the data in only certain ways. In other words, there are some real constraints upon what may be done, within reason, with the current MIS. By "within reason" is meant that, if we are speaking of making the MIS into a real-time system, with near real-time input and output, then, for all intents and purposes, we are, or ought to be, speaking about a new system, one in which it would be worse than foolish to incorporate these serious constraints. This implies a very fundamental change, comprising redesign and at least major re-programming. If, on the other hand, we are really considering only making the current MIS configuration real-time; that is, imagine that essentially the current output were available in real time, then we are no longer speaking of a management system with real applicability to management planning and control (exception reporting), but only of what would be basically an operational control mechanism.

The current MIS is mainly oriented toward project accounting, or the recording of data against discrete tasks. This has meant that, since all the time of every employee is recorded in the MIS, when utilizing the MIS all Center activity must be conceived of as being applied to discrete tasks, an obvious and serious error. The System tries to "hedge" against this misconception, which unfortunately has had certain ramifications in how some persons fundamentally view the activities of the Center, by setting up "open" project numbers and other devices which in fact obscure rather than aid assessment of accomplishments and often greatly frustrate management attempts to use the System. Perhaps it is of relatively minor importance, but this has also increased costs through undesirable redundancy between organizational element, activity code, and project number.

Not to belabor the point, but this essentially task-oriented approach is conceptually invalid and is the greatest single detriment to the System's imputed purpose, to provide management information. Although there is some legitimate management information "fallout" from the System, comprising certain aggregations of project oriented data, the System is by design basically an operational control mechanism which has been forced to masquerade as a management information system. And as a specific task-oriented system, by consensus it fails a most crucial test--it is not timely enough.

In managing specific tasks, it is important to know when, and also how far, something is deviating from plan or is out-of-control, so corrective action can be taken either by supervision or line management. It is, of course,

Main Report

a matter of judgment and a function of the particular activity being monitored just how timely information must be, but apparently the System is not timely enough because it rarely, if ever, is actually used for control purposes by line management and supervision; that is, either to ascertain if things are going according to plan or if things are out-of-control. The PMB is moving into the control area, monitoring projects using the MIS, but its position also is that the MIS is not timely enough for this purpose. And with respect to monitoring specific projects, upon which the PMB scheduling function is actually based, one could wonder if this line function, project scheduling and control, has not been relegated to what could be considered a rather high-level staff activity (even though the PMB is composed primarily of line representatives who meet daily) due in great part to the failure to provide line management with the data it needs in a timely fashion. Of course, the PMB has the additional responsibility of scrutinizing and validating requests for products or services.

As mentioned, it is the consensus of NPIC components that the MIS is not timely enough for those uses the components envisage for it. It is safe to say that IAS would prefer more timely output. As pointed out in Appendix C, output relating to time sheets is normally received about one week after the data is submitted to AID. This can mean that, for a specific project, since the time sheets cover a one-week period, it could be up to two weeks before information were available; for example, if the information pertained to time recorded against a project completed on a Monday. For other types of data, even though the data is often input daily to AID, the lag in time can be from about two days (as a best case for items such as products produced, changes in project status, picking up new projects, etc.) to about one full week. This is because updating is accomplished only once a week.

No system can be all things to all people, in spite of what some computer specialists will say, but this is the position in which the MIS has been placed. It is perhaps worthwhile to note that, while system's designers and operators may have many virtues, managerial insight and competence are not necessarily among them, but management is often afraid to challenge these specialists publically lest it display its ignorance. Such discussions usually get bogged down in detailed technical considerations, freely laced with confusing computer jargon, and the battle is fought on the computer specialist's own field, so to speak. This is unfortunate, and it should be just the reverse--the system exists to serve management and the computer center is a service organization which should be able to communicate with management in the language of management.

Because expectations and needs have not and can not be matched by performance, the MIS has failed to do any job as well as it should be done, either in the areas of strategic planning, management control, or operational control. It might be preferable to modify, as needed, and improve the MIS (incidentially

also to rename it) and essentially assign to it the job for which it is best suited; that is, monitoring specific tasks in the operational control area. To expect it to function truly as a true management system, at least in its present configuration, is just unrealistic. Perhaps with modification, ultimately it could have real utility for those discrete activities which are amenable to establishment as specific projects. This does not mean, however, that the management information "fallout" mentioned earlier should be disregarded unless or until other provisions are made.

Interestingly, the MIS has found its greatest applicability in an area inconsistent with its design; that is, in the area of what is primarily management planning (a subset of what is called management control). This is exemplified by its use in the PPB process, including PPB documentation; for example, in the planning and programming of resources to accomplish approved program elements and sub-elements. And within this use, the non-financial accounting function is greatest; that is, keeping track of how manpower resources were applied to major work categories. Rough measures, based upon this historical data, are used mainly for projecting future manpower needs; those who use these measures are quite aware of the slack within the System. The total financial aspect, the touchstone of the PPB System, is essentially outside the MIS capability, as is any object class/program element crosswalking. In addition, certain other uses are made of MIS data, such as forecasting for the PMB, with the express knowledge that the figures are rough, overall planning inputs wherein the values of the real variables comprising the estimating statistics are not known.

Aside from the obvious deficiencies in capabilities and operation of the System, too much information needed by line management is not incorporated; i.e., financial, human resource, and supplies and materiel resource information, especially if film with all its attributes (footage, targets, schedules, etc.) is thought of as a materiel resource--perhaps an uncontrolled input, but nonetheless a material resource. In the future, electronic transmissions of a real-time collection system would be analogous to this primary materiel input. Appendix D makes a point of the primacy of the management decision process, whether it be for planning or controlling purposes, or any blend of these activities; this is the area toward which a management information system must be directed--it must provide comprehensive information on the ongoing operation. To be comprehensive, it must provide human resource, supplies and materiel resource, and internal and external financial information geared to the type of decisions which must be made and to external requirements for information, and all this must be accomplished in the proper time frame. Also, as was noted in Appendix D, the central function of a management control system is motivation, motivating management to make decisions and act in ways consistent with the overall organizational objectives. The relationship of the system to other systems must be recognized, but the system should filter and condense

Main Report

information, removing that which is irrelevant for management purposes.

While the MIS is used primarily as a historical record, often the basis for rough manpower projections, and relatively little for operational decision-making by line management, in those cases where MIS information conceivably could be used for decision-making, there is a great deal of hesitancy to do so because of deep suspicions concerning the accuracy of the information. (There are exceptions concerning accuracy in some components and the IAS.) The accuracy concern basically is a function of three things: (1) certain aspects of the System itself, not amenable to change; i.e., it is not sufficiently reflective of Center activities; (2) certain System mechanisms and procedures which frustrate accuracy of input and output but which are amenable to change, and (3) a lack of interest in the System resulting in little enforcement of the procedures, inadequate validation of input data, and inattention to potential uses and worthwhile improvements. Management at all levels must share the blame for the latter two problems; it generally does not "back the System" and turns a deaf ear even when real problems are surfaced. Of course, this is not true in every case, and those components in which it is not true are precisely the ones which derive the most benefit from the MIS.

Further, this lack of backing is not necessarily the fault of top management, as is so often charged, because it is the responsibility of the lowest level of management dealing with the MIS input data to insure that it is accurate and as timely as the System permits. The Executive Director, for example, neither can, should, nor will check all the time sheets for accuracy on Monday mornings; all he can say is that the input data must be accurate and the Group and Staff Chiefs must reflect this command and pass it on to the appropriate persons. If the MIS is retained for any period and in whatever form, Center personnel should be informed thoroughly of its accuracy requirements, its operation, capabilities, limitations, and basic purposes, perhaps through a "short course" as suggested by TSSG and PPBS/PPS.

A reasonable approach to design of a management information system (what it should do and why, what it can do, and what it cannot do) is to concentrate upon the decision process, identifying the decisions to be made and the information needed to make them. These decisions are both planning and control decisions, all of which vary in a number of parameters. The material in Appendix E will not be repeated here, but it is obvious that, to a very great extent, the MIS is conceived of as a gigantic data bank able to spew out specific answers on immediate demand to varities of questions in usable form merely by pressing a button. For example, such capabilities as data for use in answering questions (unspecified), compiling papers and reports, yearly summations, etc., are called for. This completely misses the point, although in fairness decision information is implicit in much of what was asked for. But it is also obvious that merely asking managers for answers as to what is needed is not nearly a precise enough

Main Report

manner in which to determine management information needs. What must be done is to study the decision process in depth to identify the decision points, the types of decisions made, the frequency of these decisions, the relevant time frames in which they must be made, and the data and information needed. Then the system can be designed, with full consideration of both hardware and cost/effective questions, to meet as many of the requirements as possible and to incorporate legitimate external information requirements.

While the MIS is now adjudged inadequate in a number of respects, if all the information cited in Appendix E, along with the new needs that will crop up in the course of a redesign, were to be incorporated in a new system, we would be approximately back where we started, and rest assured that any system predicated upon such an approach would be a failure, in addition to being excessively expensive. If a new system is desired, an unhurried, in-depth study must be undertaken to determine what information and data are actually needed by management and a system designed to provide these. There is no other viable alternative to the successful design and institution of a worthwhile, new system.

This also implies taking a good look at what the Center is actually doing and what it will be doing in the future: that is, definition of current and projected outputs. (Some work has been accomplished in this direction recently which could be of use.) This also concerns inputs and is essential because it is the ultimate concern of management; that is, the process about which decisions must be made--what does and will the Center produce? Output is not necessarily a visible product which can be precisely measured, but explicit recognition of and understanding about Center output must be achieved. This has been a problem in the past, and not only with respect to the MIS. For example, first-phase mission exploitation means many different things to different people. To some it means the OAK, but obviously the hard copy OAK is only a part of the first-phase because other tangible and intangible products are forthcoming from the exercise; e.g., briefing boards, cables, information transfer from film to PI to analyst perhaps via telephone, enhancement of the PI's knowledge and expertise later reflected in a basic report or special study, etc. It should be clear that the hard copy OAK (it is possible that there may not even be such a report in the future) is not the only or even necessarily the best measure of first-phase processing, that it does not adequately define the output. Perhaps the Center should be viewed as an information processing and transfer link in a communications network with an output susceptible to some means of information flow measurement, rather than trying to assess output according to discrete, tangible products which really are only the media or vehicles for the information transfer. This does not mean that information on tangible output items may not be useful, but only that perhaps the emphasis is misplaced. What then are we really speaking about as initial output when a

Main Report

mission is received for exploitation? What is the most significant attribute of this process, and what should and can a management information system tell us about the process? This is the type of analysis required.

The PPB Staff was recently asked to give OAK unit costs; these cannot be derived objectively from the MIS for the reasons alluded to above. If hard copy OAK production were stopped tomorrow, but something analogous to first-phase processing continued, it is conceivable that there could be relatively insignificant savings, particularly in PI time, the point being that we do not have the information needed readily available in the MIS to make decisions in this area with any degree of assurance, nor do we know if it is possible to obtain such information in any quantifiable sense because the activity has not been explicitly and adequately defined. The gross figures available could be of some use, along with a healthy input of judgment, in assessing the problem, particularly if the question were directed toward the broad subject of all first-phase processing, but beyond that there are serious difficulties. Nor should be attempt to impute accuracy because we have some figures; attaching a number to something does not make it a fact!

In spite of the many problems attendant to the current MIS and its utilization, the System does have positive aspects which should not be overlooked or minimized. The MIS is used: to determine grossly how the Center uses its manpower, how and on what the components spend their time, and the costs of specific projects or categories of projects; for various planning purposes, and in the documentation for the PPB System. As was stated, it is mainly a historical record on which few current operating decisions are based; however, instances of decisions based primarily on MIS data can be cited; for example, by IAS. As PSG/RD pointed out, all of the MIS data can obviously be put to some use, although there is little evidence of a great deal of effort having been expended in this direction.

Perhaps the best way in which to look at the positive aspects of the MIS is to consider what the state of affairs would be if the MIS were suddenly discontinued. Obviously, Center management needs some data similar to that available in the MIS; in fact, the real problem is that more and also certain different types of information are needed and some of it in a more timely fashion. If the MIS were deleted, components would be forced to establish systems, manual and/or automated (in addition to those systems already existing outside the MIS), to fill the gap, and at the top management level at least, there would be a major problem of mutual reconciliation and interface of these systems. There is absolutely no assurance that this would be any less costly than retaining the current MIS.

Main Report

It must be remembered also that NPIC now has an ongoing, tested system whose capabilities--and deficiences--are known quantities; to discontinue the MIS means moving into an area of which little is known and in which there undoubtedly would be many problems. Employees are now familiar with the MIS, and its particular demands upon them, and are used to the routine. Discontinuing the MIS would mean discarding the positive aspects, and any systems replacing the MIS will have real costs relative to indoctrination and re-establishment of a routine.

This leads to the conclusion that, until something better is available, the basic MIS should be retained--not necessarily in its current configuration--unless further study proves this to be a bad conclusion; that is, unless the valid information requirements now met by the MIS can be met through other decentralized and more efficient systems, probably basically manual and unit record or ADP, whose operations and costs present a more favorable alternative. However, before this can be determined, any and all other systems must be well defined in further study so they can be weighed against the MIS. In other words, it would be a mistake to announce discontinuance of the MIS and generate probably what would be a mad scramble to establish other systems; if it were decided to discontinue the MIS and not replace it with a more powerful centralized and automated system, the steps following the demise and any other systems to be operated in lieu of the MIS should be well planned, understood, and agreed to by all. There are positive improvements which could be made in the MIS, along with certain decrease in costs to be achieved, particularly with respect to manpower savings associated with data input and interpretation and manipulation of output. In effect, the System can be trimmed and tailored to better meet needs more efficiently, and perhaps its primary orientation redirected so that its potential can be better realized while, at the same time, not discarding the information useful to management; that is, the management information "fallout" from the System.

A new system, based upon in-depth study of Center input and output, the decision processes, and external information requirements, would be focused upon the management control area. However, the system should have the capability of drawing upon data stored and used for operational control and strategic planning purposes. The application would therefore be an integrated data processing system incorporating, firstly, pertinent human resource, materiel resource, and financial information used for management decision-making and external reporting, and, secondly, detailed operational control data, deemed necessary and feasible to include in the system, and certain strategic planning information. As pointed out in Appendix D, however, it is neither desirable nor feasible for the system to support routinely the strategic planning activity.

Main Report

Therefore, flexibility is of paramount importance; that is, the capability to add, delete, and alter both application programs and storage files, because management information needs, much less operational control systems, are not static over time and lead times are often such that a system can be outdated before it is operational. This approach is now within the state-of-the-art. For example, with such a system, it would be possible to add new types of information as needs change, to delete files no longer worthwhile to retain, and to change programs which assemble and manipulate data drawn from storage files. This capability, possibly along with real-time access and remote display devices, would be built into and be an integral part of the system, obviating the extensive and expensive reprogramming now attendant to any major changes to the MIS. Such a system is usually termed a computer-based, general purpose, information management system; private industry is now working on the concept.

Viable alternatives to the management information problem are:

1. Discontinue the present MIS; reject the centralized, automated system concept, and establish the appropriate decentralized systems.

2. Discontinue the present MIS; use other interim systems, and move toward a new, more powerful, centralized, automated system.

3. Continue the present MIS, improving it as much as possible, and do not consider other systems.

4. Continue the present MIS, improving it as much as possible, and move toward a new, more powerful, centralized, automated system.

Major factors, developed in the preceding discussion, bearing on the problem are:

1. As a management information system, the current MIS is conceptually invalid primarily because of its project account orientation and its narrow scope.

2. The MIS is now actually inadequate as a management information system, and for other purposes for that matter, in a number of respects, including timeliness, accuracy, output formats, and data content.

3. The full potential of the current MIS has not been realized.

Main Report

4. The current MIS is not excessively costly in view of its stated purpose, but it is costly in view of its actual performance.

5. The current MIS can be modified to make it more efficient.

6. If the MIS is discontinued certain benefits will be foregone.

7. There is no assurance that there will be any savings to accrue from discontinuance of the MIS.

8. Replacement of the MIS with decentralized systems is liable to be fraught with problems wherein significant information gaps could emerge.

9. It is doubtful that other than a centralized, automated system can meet the needs of Center management.

10. Except for one Group, there is unanimous interest in more timely information, particularly in real-time capability and remote output devices.

11. In certain cases, NPIC management conceives of a new system as a gigantic data bank able to respond rapidly to almost any question. This is not a practical concept.

12. There are two fundamental objectives for a management information system: to provide essential information needed for management decision-making and to provide information legitimately demanded by external authority. Any new system should be designed to achieve only these objectives. Extraneous and "nice-to-have" information should be excluded from the system.

13. The type of system able to achieve the objectives is within the state-of-the-art.

Matching the alternatives with the major factors bearing on the problem, the following conclusions and recommendations have been reached:

1. The Center should stick with the concept of a centralized, automated management information system; to reject this concept is a step backward. This is in line

Main Report

with the Executive Director's stated desire that the Center move toward automation and optimization of the exploitation process.

2. The current MIS should be retained and modified at a reasonable level-of-effort.

3. The modified MIS should be kept in operation while a study of management information needs, with emphasis on the decision processes and external information requirements, is performed.

4. As a result of the study, a new system concept should be developed.

5. Preliminary cost estimates for modification of the current MIS, if feasible, and new systems capable of fulfilling the needs stated in the systems concept should be generated.

6. Cost/effectiveness evaluation of the alternatives should be carried out and the results, along with the final systems concepts, presented for executive decision.

7. The decision reached in step 6 should be pursued vigorously and strongly backed by NPIC management through to and after implementation. It will be not only desirable, but necessary, to assign some of the best assets of the Center to this task.

8. Because development of a new systems concept will require an in-depth study of NPIC with respect to current and future input, output, decision processes, and external information requirements, there will be worthwhile side benefits from the study with applicability to other Center problems.

9. Such a study should be run primarily in-house, with contractual assistance as needed.

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